



2002 Annual Water Quality Report

Water Quality Management Division



Tucson Water
P.O. Box 27210
Tucson, AZ
85726-7210

CONTAMINANTS DETECTED IN OUR DRINKING WATER

Tucson Water regularly samples the drinking water that is delivered to you from its sampling station located at 8364 N. Sunset Ranch Loop. Much of this testing is required by drinking water regulations. In addition to this required monitoring, we perform a great deal of discretionary monitoring in order to provide both Tucson Water staff and customers with additional information.

The Detected Contaminants Table below lists all contaminants that were detected in both the required and discretionary drinking water monitoring. Two inorganic contaminants of special interest are arsenic and fluoride, which are naturally occurring. For more information, please see the table and the specific explanations, which follow the table.

It is important to remember that the detection of a contaminant in drinking water does not necessarily

represent a threat to public health. Current technology allows water utilities to detect extremely low levels of contaminants in drinking water. A detected result means a concentration that is above the minimum value that can be measured by the laboratory.

In most cases, the minimum detectable level of a contaminant is well below the USEPA regulatory limit for that contaminant. To compare the detected amount with the amount allowed by the USEPA, refer to the Maximum Contaminant Level (MCL) column in the table. The vast majority of regulated contaminants were not detectable in drinking water delivered by Tucson Water. The non-detected results were not included in the table. For a complete list of all USEPA regulated contaminants contact the USEPA at 1-800-426-4791 or visit the USEPA website at www.epa.gov/ogwdg/wot/appa.html.

DETECTED CONTAMINANTS TABLE

Contaminant	Maximum Result	Range	MCL	MCLG	Major Sources
Inorganics					
Fluoride*	0.87 ppm	0.87 - 0.87 ppm	4 ppm	4 ppm	Natural deposits
Nitrate (as N)	4 ppm	3.8 – 4.0 ppm	10 ppm	10 ppm	Natural deposits; septic tanks; agriculture; sewage
Radiochemical					
Gross Alpha*	12.3 pCi/L	12.3 – 12.3 pCi/L	15 pCi/L	0 pCi/L	Natural deposits
Radium 226*	0.8 pCi/L	0.8 – 0.8 pCi/L	20 pCi/L	None	Natural deposits

*Represents data collected in 2000.

DEFINITIONS OF TECHNICAL AND REGULATORY TERMS

Action level. The concentration of a contaminant that if exceeded, triggers a treatment or other requirement which a water system must follow.

Maximum Contaminant Level (MCL). The highest level of a contaminant that is allowed in drinking water. MCLs are set as close to the MCLGs as feasible using the best available treatment technology. If a contaminant is believed to cause health concerns in humans, then the MCL is set as close as practical to zero and at an acceptable level of risk. Generally, the maximum acceptable risk of cancer is 1 in 10,000 with 70 years of exposure.

Maximum Contaminant Level Goal (MCLG). The level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs allow for a margin of safety.

Parts Per Billion (ppb). Some constituents in water are measured in very small units. Organic compounds such as trihalomethanes are monitored by Tucson Water in terms of parts per billion (or micrograms per liter). To help you visualize how very small this unit is, we offer the following illustrations. One part per billion equals: One second of time in 31.7 years or the first 16 inches of a trip to the moon.

Parts Per Million (ppm). Many dissolved minerals such as sodium and calcium are monitored by Tucson Water in terms of parts per million (or milligrams per liter). To help you visualize how very small this unit is, we offer the following illustrations. One part per million equals: 2 ounces of water in a typical 15,000 gallon backyard swimming pool or one second of time in 11.6 days.

Picocurie Per Liter (pCi/L). The quantity of radioactive material in one liter which produces 2.22 nuclear disintegrations per minute.

EXPECTED DRINKING WATER CONTAMINANTS

All drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. Tucson's groundwater contains dissolved minerals and organic compounds, which have been leached from rocks, sediments, and plant minerals through which the water traveled. One would expect to find beneficial minerals such as calcium and magnesium, harmless minerals such as chloride, bicarbonate, and sulfate, and metals such as iron, copper, arsenic, and lead, which may be either beneficial or harmless at low concentrations, but harmful at high concentrations. In addition to these naturally occurring contaminants, groundwater may contain contaminants resulting from human, industrial, or domestic activities. For this reason, water utilities must currently monitor for approximately 90 regulated and 12 unregulated contaminants.

The following language is required by the USEPA to appear in this report, some of which may not be applicable to deep groundwater wells, the source of this water supply:

Contaminants that may be present in a source water can include:

- Microbial contaminants, such as viruses and bacteria, which may come from sewage, agricultural livestock, and wildlife.
- Inorganic contaminants, such as salts and metals, which can be naturally-occurring or result from urban stormwater runoff, industrial or domestic wastewater discharges, oil and gas production, mining, or farming.
- Pesticides and herbicides, which may come from a variety of sources such as agriculture, urban stormwater runoff, and residential uses.
- Organic chemical contaminants, including synthetic and volatile organic chemicals, which are byproducts of industrial processes and petroleum production, and can also come from gas stations, urban stormwater runoff, and septic systems.
- Radioactive contaminants, which can be naturally occurring or be the result of oil and gas production and mining activities.

In order to ensure that tap water is safe to drink, USEPA regulations limit the amount of certain contaminants in water provided by public water systems. Food and Drug Administration regulations establish limits for contaminants in bottled water that must provide the same protection for public health. Bottled water may come from either a surface water source or groundwater source, and may be treated minimally or extensively. For information on the quality of your bottled water, contact the water bottling company.



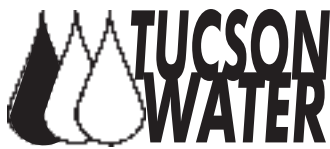
DETAIL INFORMATION ON DETECTED CONTAMINANTS

Fluoride is an important naturally-occurring mineral that helps to form healthy teeth and bones. A concentration of 1 ppm is considered optimum. At concentrations above 2 ppm, fluoride can cause mild discoloration of teeth, and exposure at above the MCL of 4 ppm can cause both severe discoloration of teeth and over many years of exposure, bone disease.

Federal law requires notification when monitoring indicates that the fluoride in drinking water exceeds the SECONDARY contaminant level of 2.0 ppm. This is intended to alert families about dental problems that might affect children under nine years age. Fluoride in children's drinking water at levels of approximately 1.0 ppm reduces the number of dental cavities. However, children exposed to levels of fluoride greater than 2.00 ppm may develop dental fluorosis. Dental fluorosis, in its moderate to severe forms, is a brown staining and pitting of the permanent teeth. (pt from the gums) are exposed to Lower concentrations of fluoride in the water will provide the benefits of cavity prevention while the possibility of stained and pitted teeth is minimized. Removal of fluoride may increase water costs. Treatment systems are also commercially available for home use. Low fluoride bottled drinking water that would meet all the standards is also commercially available.

Nitrate is a form of nitrogen and an important plant nutrient. Nitrate in drinking water at levels above 10 ppm is a health risk for infants of less than six months of age. High nitrate levels in drinking water can cause blue baby syndrome. Tucson water performs extra monitoring on wells high in nitrate for extra assurance that action can be taken when approaching the MCL.

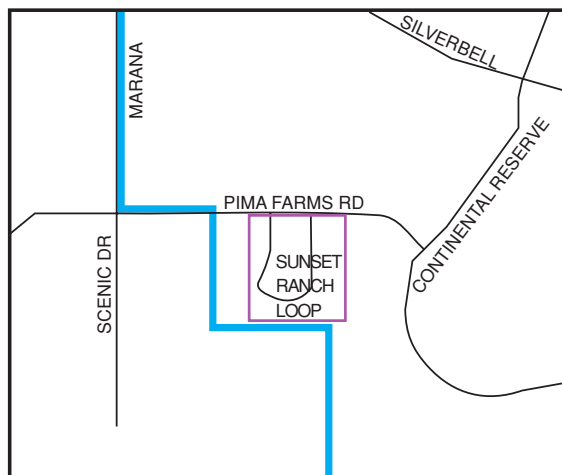
Gross Alpha is a measure of radioactivity due to naturally occurring minerals in groundwater. The MCL for gross alpha radioactivity is set at 15 picocuries per liter (pCi/l). This excludes the radioactivity contributed by either radon or uranium.



DURING 2002, TUCSON WATER ENSURED THAT YOUR DRINKING WATER MET ALL DRINKING WATER STANDARDS.

Tucson Water is pleased to provide you with this Annual Water Quality Report. The publishing of this report is required annually by the Safe Drinking Water Act and State of Arizona regulations. This report will also serve as a reference with important information on the quality of water we deliver and will provide you with contacts and phone numbers you may need from time to time.

SUNSET RANCH Isolated System is a unique small water system serving approximately 30 homes. This is the only isolated system, where water is not supplied by a Tucson Water well. Rather, it is served by water supplied by the Town of Marana.



A SPECIAL NOTE TO AT-RISK POPULATIONS

While the Safe Drinking Water Act regulations are intended to protect consumers throughout their lifetime, some people may be more vulnerable to infections from drinking water than the general population. These "at-risk" populations include: immuno-compromised persons such as persons with cancer undergoing chemotherapy, people who have undergone organ transplants, people with HIV/AIDS or other immune system disorders, and in some cases, elderly people and infants. These people should seek advice about drinking water from their health care providers. USEPA/CDC guidelines on appropriate means to lessen the risk of infection by cryptosporidium and other microbial contaminants are available from the USEPA's Safe Drinking Water hotline.

HOW IS OUR DRINKING WATER TREATED?

The groundwater delivered to you meets all drinking water standards without treatment. However, approximately 0.8 parts per million (ppm) of chlorine is added to the drinking water supply to provide assurance that water delivered to customers remains free of microbiological contamination. This also ensures that the water meets microbiological drinking water standards from the time it is pumped from the ground until it reaches the customer's tap.

WHOM DO I CONTACT FOR MORE INFORMATION?

For more information on this Tucson Water report contact Tom Jefferson or Mohsen Belyani with the Water Quality Management Division. Call 791-5252 or e-mail your questions to tjeffer1@ci.tucson.az.us or mbelyan1@ci.tucson.az.us

TELEPHONE NUMBERS:

Tucson Water Quality Automated Phone Line
Tucson Water Public Information Office
Tucson Water Quality Management Division
Tucson Water Customer Advocate
Tucson Water Customer Service/Billing
Tucson Water 24 Hour Emergency

791-4227
791-4331
791-5252
791-5945
791-3242
791-4133

Additional information is also available from the Tucson Water Website
United States Environmental Protection Agency Safe Drinking Water Hotline
USEPA Website

www.cityoftucson.org/water/
1-800-426-4791

www.epa.gov/safewater/
791-2639

City of Tucson TTY#

Si usted desea este documento escrito en español, por favor, llame al 791-4331.